from the usual course, when considered in connection with the tropical storm which preceded it, is suggestive and interesting.

No. XII was decidedly the most extensive of the month, and was attended by a continuous flow of cold northerly winds towards the Gulf, producing a rapid change of temperature in all the districts, and continuous rains in the Southern States during the latter portion of the month.

ATMOSPHERIC TEMPERATURE.

The mean temperature of the month is shown by the isothermal lines on Chart No. II. It differs but slightly from that of December, 1873, and has been from one to five degrees above the mean of the month, in the districts of the United States east of the Territories. The low temperature in the St. Lawrence valley is probably due to the relative distribution of atmospheric pressure, as the area of low barometer which developed rapidly in the North Atlantic during the month produced north and west currents, passing over this region from higher latitudes, around the west side of this depression. Reports from New Mexico show that the temperature has been lower than for many years, and that this extreme cold has been accompanied by heavy snows in the valley of the Rio Grande as far south as the northern boundary of Mexico.

PRECIPITATION.

The distribution of rain and melted snow is shown by the isohyetal lines on Chart No. III, and the amount of precipitation during the month in the several districts, as compared with the mean deduced from several years, is given in the table. It will be seen that there has been a deficiency in precipitation in nearly all the districts east of the Mississippi river and in the Northwest, and a large excess in the Southwest. There has been an excess of cloudiness in the regions north of the Eastern Gulf States, and the number of days on which rain or snow has fallen is unusually large in comparison with the amount of precipitation.

WINDS.

The mean direction of the winds at the several stations of the Signal Service is shown on Chart No. II. The total atmospheric movement for the month, independent of direction, has been as follows at the stations named below:

Boston	6,393 miles.	St. Louis	7,107 miles.	Detroit	6,282 miles.
Baltimore	4,657 "	New Orleans	5,506 "	Chicago	7,341 "
Buffalo	8,670 "	Albany	7,618 "	Memphis	3,500 "
Cleveland	8,032 "	New York	7,090 "	Charleston	5,158 "
Cincinnati	5,187 "	Pittsburgh	4,986 "		

Among the maximum total movements the following are noted:

Erie	12,260 miles.	Sandy Hook	11,993 miles.
Cape Hatteras	9,323 "	Grand Haven	9,280 "

The winds have been light at the following stations: Augusta, Ga., total movement, 2,494 miles; Lynchburg, 2,809; Nashville, 3,406.

A velocity of one hundred miles per hour occurred at Mt. Washington on the 12th.

CAUTIONARY SIGNALS AND VERIFICATION OF PREDICTIONS.

During the month ninety-eight Cautionary Signals were displayed at the stations in the United States, and thirty-six storm-warnings were sent to the Canadian stations.

Eighty-eight and seven-tenths per cent. of those ordered for the stations of the Signal Service were justified by the occurrence of dangerous winds within one hundred miles of the signal. The signals at Wilmington and New London were of special value, as they prevented vessels from going to sea immediately preceding the storm of the 20th.

Probabilities.—A critical comparison between the predictions published in the tri-daily probabilities and the subsequent weather reports, shows that on the average, during themonth, ninety-four and four-tenths per cent. of the predictions have been well verified.

NAVIGATION.

The condition of the rivers during the month is given in the table on Map No. III, from which it will be seen that the Red river rose slowly but steadily at Shreveport during the greater portion of the month, and recent reports from points above Shreveport show a sufficient depth of water for navigation. The Missouri river was closed throughout the month at Fort Sully and Yankton, and after the 9th at Omaha. The heavy rains which attended the storm No. VIII in the Tennessee, Ohio and Cumberland valleys, caused a considerable rise in these rivers, beginning on the 20th. These freshets had partly subsided before they were reinforced by the still greater rise of the 28th and 29th. No important change occurred in the Mississippi river until the 23d, when the freshets from the Ohio and the Cumberland caused a rise of ten feet at Cairo, the freshet wave reaching Memphis on the 25th, and Vicksburg on the 29th. At St. Paul and La Crosse the river remained closed during the entire month.

Navigation closed at a greater portion of the Lake ports between the 1st and the 10th of the month. The Erie canal was closed on the 5th.

TEMPERATURE OF WATER.

The table on Map No. II, gives the maximum and minimum temperature of water at many of the Signal stations on the lakes, rivers, Gulf and South Atlantic coasts. The range of water temperature in the rivers and lakes located in the central and northern sections of the country is small, as the temperature of water was, comparatively, near the freezing point at the beginning of the month. In the southern rivers, and on the Atlantic and Gulf coasts, the range has been larger, and a comparison of the mean temperature of water with the mean atmospheric temperature, shows that the temperatures of the air and water have differed but little, the air being slightly cooler. The only instance where the water has been colder than the air is at St. Louis, where the winds have been southerly during the greater portion of the month. In the lakes, and on the coast of New England, the mean temperature of the air has been much lower than that of the water, the greatest observed difference being 17 degrees at Eastport, 10 degrees at Portland, 9 degrees at New London, 14 degrees at Duluth, and 11 degrees at Marquette.

ATMOSPHERIC ELECTRICITY.

Thunder and Lightning.—The thunder-storms which have occurred during the month in the southern portion of the country were uniformly in the vicinity of areas of barometric depression. Those accompanied by the most vivid displays of lightning were as follows: At Montgomery, zig-zag lightning on the 3d; at Indianola and Fort Gibson on the 4th; at Charleston on the 7th; at Galveston on the 17th, 19th and 25th; at Cape Hatteras on the 20th; at Corsicana, Texas, on the 28th.